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FEEDING, LOCOMOTOR AND RESTING BEHAVIOR IN MALE CAPTIVE SAMBAR : A SEASONAL STUDY

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Annual changes in feeding, locomotor and resting activities was studied in captive sambar at Indore (Lat 22.5° and 76° E). A significant variation in all three activities was noted. Maximum locomotion and feeding activities were observed in the month of September. In contrast, during this month animal showed minimum resting activites. While lowest locomotion was observed in April, feeding was minimum in February. Findings emphasize that moderate environmental conditions are required for the maximum activity in sambar.

INTRODUCTION

Seasonal studies on behavioral activites of deers are meager (Green, 1987; Jeppesen, 1989; Gupta & Bhardwaz, 1990; Paul & Dale, 1990). In Indian Sambar the information available till todate on seasonal activity pattern is restricted to olfactory behavior only (Marry & Balkrishnan, 1984 a&b). On locomotor, feeding and resting activities information is practically nil. It was therefore thought to undertake a systematic seasonal study on the aforesaid behavioral activities of sambar in relation to change in embient temperature, humidity and day length.

MATERIAL AND METHODS

Sambar, *Cervus unicolor* is the largest Indian deer, widely distributed in forest areas. As it is rarely seen in open areas during day time (Brander 1982, Sankaran 1990), local zoo (Indore, Lat. 22.5°N and Long. 76°E) was selected as our study site. Observations were made on healthy male sambars which were inside a wire fenced open enclosure (22480 sq. ft. area). Animals were identified by their body size and various identification marks. Every month from Aug. 1990 to Aug. 1991 observations were made on feeding, locomotor and resting activities of male sambars for one hour duration (8-9hr of the day). Every time observations were made for five consecutive days on fixed dates (15th to 19th of every month). Data were subjected to analysis of variance (ANOVA) and "t" test.

RESULTS AND DISCUSSION

Results are summarised in Fig. 1 and Table I. ANOVA analysis indicated significant variations in all three activities, studied in different months of the year. Maximum and minimum feeding activities were observed in the month of September 1990, ($P < 0.02$ compared to the value of August 1990) and February 1991 ($P < 0.01$ compared to the value of January 1991) respectively. In all other months a low profile was maintained. Locomotion was highest in September 1990 ($P < 0.02$ compared to August 1990) and lowest in April 1991 ($P < 0.01$, compared to the value of March 1991).

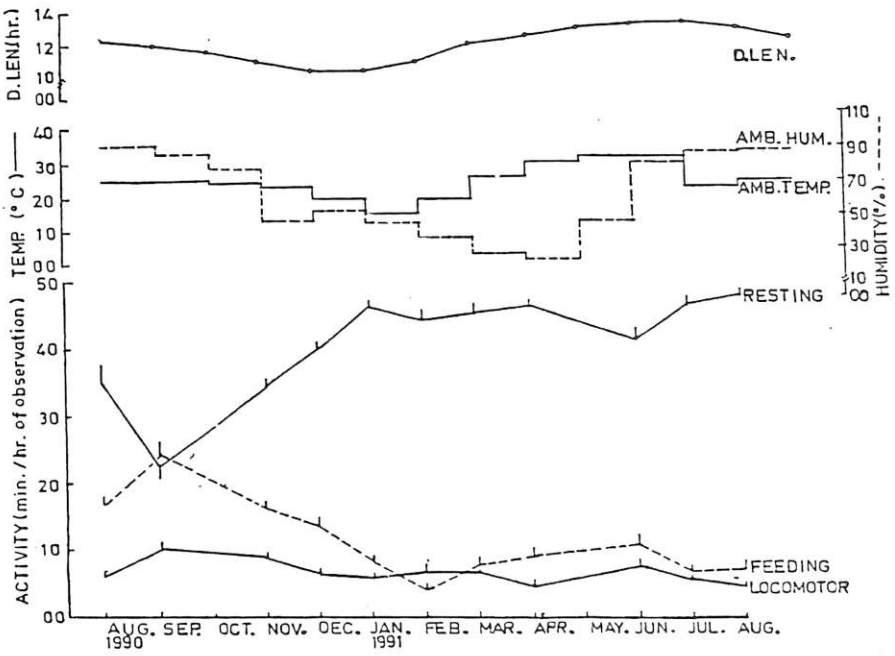

Fig. 1. Annual variations in feeding, locomotor and resting activities of male Indian sambar, *Cervus unicolor* in captivity. Upper pannels show monthly changes in average ambient temperature, day length and humidity at Indore. Vertical bars indicate standard errors of means.

Table I. Average feeding, locomotor and resting activities of male sambar in captivity during summer and winter period at Indore.

Time	Activity (Min./hr of observations)		
	Locomotion	Feeding	Resting
Summer	6.15	8.94	44.19
	±1.06	±0.93	±1.43
Winter	6.82	10.42	41.01
	±0.61	±2.62	±2.61

In contrast, minimum resting activity was observed in the month of September 1990 ($P < 0.01$ compared to the value of August 1990) and a high profile was maintained in rest of the year. No significant difference was found in any of the activities when the calculations were made with the value of Summer versus Winter season (Table I).

Results indicate a distinct seasonality in feeding, locomotor and resting activities in captive male sambar. However, no significant difference was found between the values of Summer and Winter months. This rules out the possible involvement of

temperature in the regulation of these activities although in Roe deer and White tailed deer low activity has been observed during Winter (Jappesen, 1989; Paul & Dale, 1990). While in Elk 10% decline was observed in feeding activity from Summer to Winter (Green & George, 1990) in sambar 16% increase is noted.

Reproductive status is also known to regulate the activites of deers (Chattopadhyay & Bhattacharya, 1987; Marcos, 1988). Animals usually require extra energy for their breeding activities, which they acquire through increased food consumption. Relatively more food consumption during November and December could therefore be related to matting time of the animals. However, maximum activities were observed in September when animals enjoyed moderate climatic conditions. It indicates that, for maximum activities, sambar probably requires moderate temperature, day length and humidity.

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